



PROP WASH

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Christmas Party at the Espositos



If you were not there then you really missed out. Fran and Paul Esposito pulled out all the stops to create an amazing and memorable evening for our club members. **Thanks Fran and Paul!!!** The pictures speak for themselves. Can't wait till next year!!!



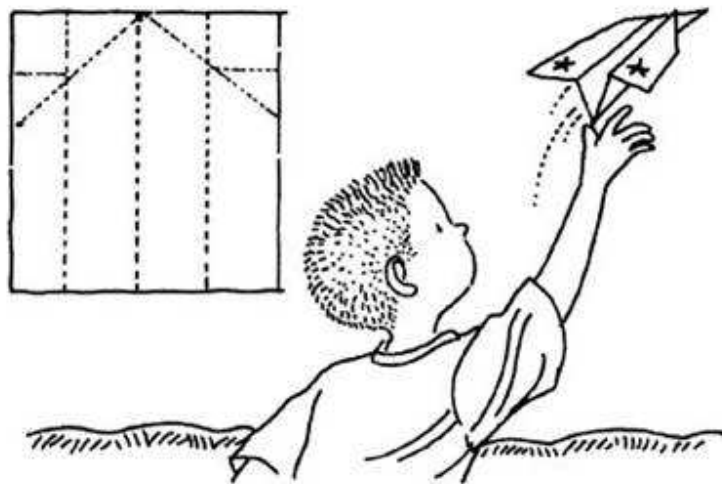
Laurel Modeling Club

Students in grades 2-9 within the Laurel Modeling Club are being exposed to a bunch of different building, flying, and modeling projects. The club meets every 2nd and 4th Friday of the month at North Laurel Elementary School from 3:30 till 4:30 PM. Currently the club has 98 students with approximately 50-60 students in attendance during each session. While these students clearly enjoy the time they spend during club practices and have improved their knowledge and building skills, for many of them their skills are limited. Our club hopes to change this over the next several years and hopefully even have them learn to fly an electric powered RC plane in the field outside our school. With help from the AMA, Remy Haynes of the Hobby Stop, Dawson Gillaspay and Jerry Springer students are participating in following club projects:

- Paper Airplanes: several different models
- Plastic model cars, trucks, tanks, etc.
- Foam plane made from an egg carton
- Foam plane made from a paper plate
- Water bottle rockets
- RC Plane Simulator (donated by Jerry Springer)

We would love to hear any ideas you might have for our club curriculum!

On Saturday, February 26th modeling club members will participate in a paper airplane contest during the opening ceremonies of the Mid-Atlantic Sport Stacking Championships. The event will take place at around 9:00 am at the Laurel Senior High School. Participants will fly a paper airplane that they have made ahead of time in two contests- one for accuracy and one for distance. Feel free to come on out and check it out! We would love to see you there!!!



The Importance of Setting Headings

by Mike Lynch

One of the first goals of flying RC is to be able to make smooth, level turns. As early as your first practice flight, your instructor will tell you to bank with ailerons, maintain the turn with the elevator, and straighten with the opposite aileron. The goal is to maintain a smooth turn with no gain or loss of altitude. The time it takes to master this first step varies from one beginner to another. And the good feeling you get from mastering this step is but one of many you will enjoy as your flying improves.

With this step mastered, you will be able to “keep the airplane in the air.” However, you may not be able to enter and exit the turns you make as predictably as you would like. You may find that the airplane is flying you, wandering all over the flying field. The second step to flying is to master entering and exiting turns precisely—and the importance of this step cannot be over assessed. As you begin learning how to land, it is mandatory that you are able to exit your last turn (during final approach) in a manner that has you perfectly aligned with the runway. You can master this very important talent only by knowing how to set headings.

Practice with figure eights. Once you are relatively comfortable making smooth, level turns it is time to begin practicing more precise turns. Figure eights are excellent for this purpose because they force you to make left and right turns equally to avoid the “I can only turn left” syndrome. To begin, we recommend making left turns on your right side and right turns on your left side. This way the airplane will always be turned away from you. (Many beginners feel uncomfortable when the model is coming directly at them, even in a turn.)

At first, you may find this quite difficult. The goal is to exit each turn with the airplane heading directly toward a corner of the field (with the center of the figure eight directly in the middle of the field). You will find that you must begin exiting the turn slightly before your desired heading is reached, which can be tricky. Your first few attempts will probably not be perfect and will force you to make minor corrections; you must be quite gentle with the controls to avoid over correcting. Once you have mastered, reverse the direction of the figure eight and start again (right turns on your right side, left turns on your left side).

Always remember the importance of setting headings. As you practice landings (and even after you have performed your first solo), whenever you are having problems setting up your headings, go back and practice figure eights. →

Tips & Tricks

Sanding Tool

While repairing a couple nonremovable wing struts in the connection joint at the fuselage (Fokker D-VIII), I used a small amount of spot putty to correct some gaps in the wood strut. When next to the fuselage, it gets quite tight limiting the sanding process.

I attached a small piece of self-stick sandpaper to one of my wife's best butter knives to reach into this tight spot. After all, nothing is too good for modeling use. Works great.

Also can be used to reach into the fuse or wing if needed to sand. Use a round item such as a pen or pencil for a radius.

—Mike DaBiere, Front Line Flyers, York, Maine

Importance of Balancing Lithium Polymer Batteries

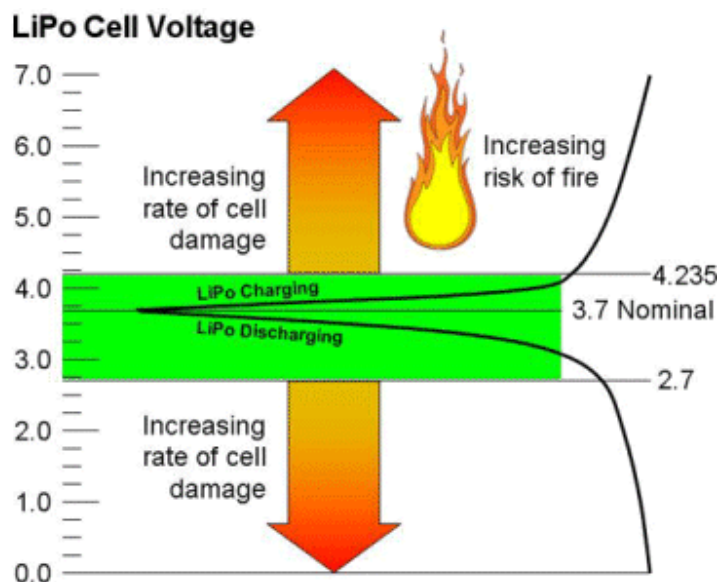
From the Falling Water Radio Control Flying Club, Soddy-Daisy, Tennessee

by Dave Buxton

The primary reason for this article is to explain the importance of using a balancer for Lithium-polymer (Li-Poly) battery charging every single time you charge your Li-Poly batteries. Balancing will greatly reduce the risk of your batteries going bad prematurely.

Let's start with an illustration for those who may be electronically challenged:

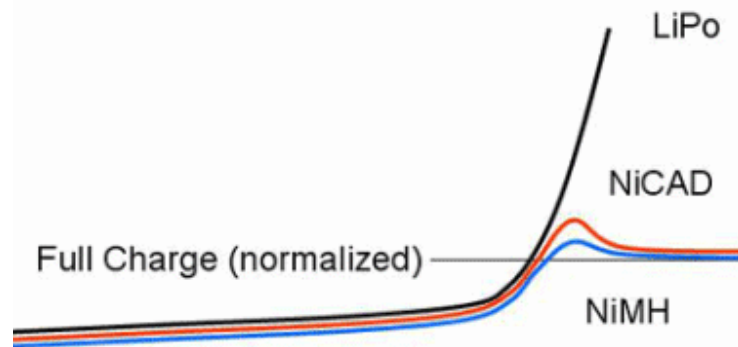
- Imagine two 5-gallon buckets. One has been used for mixing paint and has several layers of it coating the inside.
- The bucket with reduced capacity (painter's bucket) will fill faster and will empty faster if the flow rate for each is the same.
- Normal aging and cell damage are like adding layers of paint. The cell with less capacity will charge or discharge faster than the other cells in the pack.
- Brand new battery packs can have cells that are poorly matched.
- Cell balancing is like drilling a hole in the bottom of the painter's bucket so it will fill no faster than the clean new bucket. We can put our finger over the hole as necessary to keep the two buckets in balance as we fill them.
- Using a Li-Poly balancer does not scrape the paint out of the painter's bucket.



Li-Poly chemistry accumulates a charge over a fairly narrow voltage range with rapidly diminishing capacity exhibited above and below this range. This explains why the voltage rises or falls more rapidly above or below this chemistry range. Operating outside this range of voltages will at best accelerate the aging process and can result in serious cell damage and even smoke and flame. A battery that could have lasted three years might fade away in less than a week if one cell has a significantly reduced cell capacity relative to its mates.

(Balancing Lipos (cont. from page 4))

Nicad and NiMH cells self limit at full-charge voltage. At that point they start getting hot, which is why it is very important that Nicad and NiMH chargers detect full charge and switch to a trickle charge rate. Li-Poly cell voltage is not self limiting, which is why you should never use a Nicad style trickle charger. Diagram 2 normalizes the three charging curves so that their respective full-charge voltages appear to be the same.



You may be a newcomer to RC flying of indoor or park flyer airplanes on a very limited budget. This article need not scare you out of the hobby or into purchasing an expensive charging system. The smaller, simpler Li-Poly chargers do not charge batteries all the way to the top, allowing some margin for a cell being out of balance.

At least do the following if you don't use a balancer:

- Make sure the charger is charging to an adequately conservative voltage that is less than 4.2 times the cell count.
- Check the cell count each time you use the charger. Wrong cell count is one of the leading reasons for smoke and fire, which has lead to car fires and houses burning down.
- Once in awhile, at full charge, use a volt meter to confirm that none of the cells are being charged to more than 4.2 volts. If a trend is developing in that direction then its time purchase a balancer.

If the above is stretching it a bit, then you should at least add an external balancer (e.g. Blinky Balancer).

Consider the following limitations of an external balancer:

- May not be aggressive enough, especially for larger batteries or any battery with cells more seriously out of balance (Blinky balancing cost me an expensive battery).
- An integrated balancer can easily produce an alarm if you dial in the wrong cell count. An external balancer won't do that.
- A charger with an integrated balancer will slow down or even stop the charging process whenever the balancer is not keeping up.

If your flying practice sounds anything like the following, then you should (must) use a charger with an integrated balancing system:

- High battery stress style of flying (e.g. lots of full throttle, hot weather, flying until the battery fades, outdoor helicopters).
- Cell counts greater than three.
- Cell capacity greater than 2100 mAh for which you should at least use a Blinky external balancer.

Some chargers have an external balancer that communicates with the charger. This can be as effective as having the balancer built into the charger. →



Radial Engines – How They Work

How Stuff Works

Marshall Brain

Inside a Radial Engine

The radial engine idea is very simple -- it takes the pistons and arranges them in a **circle** around the crankshaft, as shown here:

You can see in the illustration that this is a five-cylinder engine -- radial engines typically have anywhere from three to nine cylinders. The radial engine has the same sort of pistons, valves and spark plugs that any four-stroke engine has. The big difference is in the **crankshaft**.

Instead of the long shaft that's used in a multi-cylinder car engine, there is a single **hub** -- all of the piston's connecting rods connect to this hub. One rod is fixed, and it is generally known as the **master rod**. The others are called **articulating rods**. They mount on pins that allow them to rotate as the crankshaft and the pistons move.

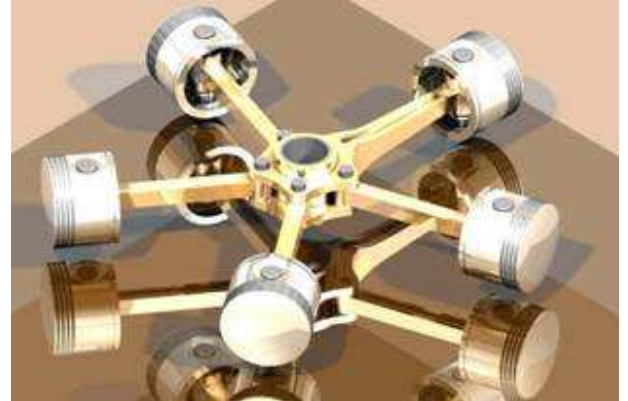
Radial engines have several advantages for airplanes:

- They can produce a lot of power. A typical radial engine in a B-17 has nine cylinders, displaces 1,800 cubic inches (29.5 liters) and produces 1,200 horsepower.
- Radial engines have a relatively low maximum rpm (rotations per minute) rate, so they can often drive propellers without any sort of reduction gearing.
- Because all of the pistons are in the same plane, they all get even cooling and normally can be air-cooled. That saves the weight of water-cooling.

Radial engines reached their zenith during WWII. There are some radial engines around today, but they are not that common. Most propeller-driven planes today use more traditional engine configurations (like a flat four-cylinder) or modern gas turbine engines. Gas turbines are much lighter than radial engines for the power they produce.

One place where you can still see the influence of the radial engine concept is in the two-cylinder engine of a Harley Davidson motorcycle.

It can be thought of, in a way, as two pistons from a radial engine. In a Harley, both pistons share a single connection point to the crankshaft, like in a radial engine.



Dumb Thumb!!!

This issue I'll talk about my most recent dumb thumb experience. Please note that while I should always have plenty of my own dumb thumbs to write about, I welcome any of yours for future issues!

Well this month I won't be talking about a most recent plane or helicopter crash or a finger almost cut off or any other bodily injury. What I did this time was even dumber.

I figured that with all of my extensive flying experience with small electric planes and a most recent stint with a 4-stroke engine leaving me nearly dismembered, the most logical progression for me would be to move into giant scale gas airplanes! Not only that, I felt that my far-reaching experience should be enough to completely bypass 25 and even 50cc gas planes and advance directly into a 100cc gas monster! Talk about foolish!!!

The short it is that about a year ago I began thinking about getting a biplane that proved to be 3D capable. I loved the look of Paul, Mike John, and other's biplanes as they flew them and also when they were in the pits (no pun intended). Then one day while I was thumbing through my AMA magazine I stumbled upon Hangar 9's new Beast which is a Pitts model biplane. The more I learned about the Beast, the more I liked her and the more I wanted to learn. I began watching videos and reading blogs about the Beast on Flying Giants. The Beast seemed to be the perfect fit but could I really afford her. I talked to Remy at the Hobby Stop and he gave me a great deal on the plane and the parts.

It wasn't until the engine and prop arrived at my house that reality set in about the massive size of this project when compared to anything I had ever flown before. I have had to keep reminding myself that giant scale is supposed to be easier to fly. I certainly hope this is true as I have really grown fond of this plane as she gets closer to completion.

What's great is the support that I have received from the members of this club. They have already taught me so much about building techniques, electrical setups, gas engines, and many other useful tips for this new class of planes. I have also learned from the members of Flying Giants who are also building or have built the Beast. There is certainly no shortage of helpful people in this hobby!

It's a good thing that it's winter and the weather is not suitable for flying. While I'm enjoying this build and excited about getting her completed, I feel no rush to get her into the sky. Sorry guys but I kind of hope the cold weather sticks around for a while longer☺ I've got the Beast on my simulator and I fly her as much as I can in hopes that I will be ready for the real thing. Thanks guys for helping me through this major learning curve!



Esposito's Hangar





Upcoming Events:

Web Site: Mike Ludden is updating our club's web site! Keep your eyes out and please send him any pictures and event information you may have.

February Meeting:

2/8/2011 6:00 PM

American Legion Post #28 at 6:30

Bring Dues and AMA Card!

Valentines Day! Don't Forget!!!!

Monday February 14th

Get her something special!!!

Model Airplane Contest

Saturday, February 26th

Laurel Senior High School

9:00 AM

March Meeting 3/8/11: You might

want to play the lottery on this day!

American Legion Post #28 at

6:30pm



President: Jerry Springer – 690-6173
Secretary: Dawson Gillaspay – 945-0329
Field Marshal: Paul Esposito – 228-8597
Events: Alan Walker, 684-0523

Safety Officers: Paul Knapik – 947-2627 and Jim Halpin – 684-4459

Vice-President: John Pulli – 945-8242
Treasurer: Vince Peterson – 684-1265
Editor: Garrett Lydic – 381-9220
Web Master: Mike Ludden – 684-5162

Instructors: Bevan Buel, 703-2573; Paul Esposito, 228-8597; John Golomb, 541-4128
 Mike Ludden, 684-5162; Eric Martin, Alan Walker, 684-0523; Clark Woodring, 227-3236